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INFUSION OF JEQUIRITY,

OR

LICORICE BEAN, IN INVERTERATE PANNUS,

WITH A REPORT OF SEVERAL SUCCESSFUL CASES.

BY

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INFUSION OF JEQUIRITY, OR LICORICE BEAN,¹ IN INVETERATE PANNUS,

WITH A REPORT OF SEVERAL SUCCESSFUL CASES.²

THE treatment of chronic granulations and sarcous outgrowths of the conjunctiva and cornea has always been a chapter of great interest to the physician and the patient. It has elicited the efforts of the best surgeons of every country where affections of the lids and eyeball prevail. In England, Germany, and the United States clinical work in this department has been displayed from different standpoints. Within the past few years the direction of applied effort has been in the establishment of an acute ophthalmia in lieu of the chronic proliferous catarrh of these structures. Chronic trachoma of the eyelid and inveterate pannus of the cornea are the result of the same pathological processes, differing only in location, but amenable to the same remedial agencies. It will seem a strange statement, that a structure of so low an organization as the cornea should be involved in the same pathological processes as one of so high a type as the conjunctiva. The cornea serves at once the function of confining and protecting the contents of the eyeball, and at the same time of refracting the first rays of light which are transmitted to the dioptric system; while the conjunctiva, rich in nerves and blood-

¹ *Abrus precatorius*, Linn

² Read before the Vermont State Medical Society, convened in Rutland, Vt., June 13, 1883.

vessels, serves merely as a lubricating and protective layer.

It cannot be denied that the inoculation of eyes with pus of various purulent ophthalmias has taken a more and more prominent place in ocular surgery. It is well known that the measure of success of the experiment is, within limits, determined by the activity of the inoculation. The experiments of Critchett, Lawson, and Bader in London, of Warlomont in Brussels, of Abadie and others in Paris, are entitled to highest praise in view of their successes; while, at the same time, the procedure will always be unpopular on account of the severity of the resulting inflammation and the natural repugnance of the patient and operator. Such experiments ought to be conducted only where a large number of trachomatous patients are aggregated, and when there is a small per centum of operations on the eye.

The report for 1881 of the Ophthalmic Division of Charity Hospital, Blackwell's Island, gives details of the favorable results of six experiments in inoculation, conducted by the author of this paper, the first case of the series having been presented as a contribution to this Society at its semi-annual meeting in 1881, and published in THE MEDICAL RECORD, July, 1881. Although I hold to the same opinions as to the efficacy of this treatment, as a *last resort* in all cases of inveterate pannus, yet I welcome the proposition of any new remedy, whether of the mineral, vegetable, or animal kingdom, which shall do away with the immense risks to the patient, the surgeon, and the nurse, in the establishment of an artificial purulent ophthalmia. Various aromatic infusions, and hot medicated compresses have been used for this purpose, but they all lack intensity and duration. The present agent, which I show you in seed and infusion, is known by the botanical name of *abrus precatorius*, of Linnæus' classification; the seed is called licorice bean (not the licorice known in commerce); and in Brazil, where it has been used for years in ophthalmic practice, the seed

is called *jequirity* (Fr.). The literature, all of which I have at hand, with the exception of the first article, written in 1867 in Brazil, is very meagre. This article was a brief memoir, in the Portuguese language, calling attention to the dangers connected with its use in eye-practice. I may add, that I hope not only to secure this initial article on the subject, but to interest the Secretary of State at Washington, with the view of procuring all the native medical and lay testimony upon the use of the infusion in ophthalmias in Brazil. If we have here an agent which, in the majority of cases, will prevent blindness and helplessness as a result of inveterate pannus, it is an object of popular charity to acquaint ourselves with its history, preparation, and application.

The infusion has been prepared of various strengths. That used in the Northwestern Dispensary and Charity Hospital, New York City, was prepared as follows : Take of the *fresh* seeds 32, or 3.2 grm. ; macerate in 500 grm. ($16\frac{2}{3}$ $\frac{2}{3}$) of cold water for twenty-four hours ; add 500 grm. of hot water ; when cold, filter, and preserve in well-stoppered, dark-colored phials. When fresh the solution should be clear and odorless ; after standing a few days it becomes opalescent, and, what the literature in every instance fails to mention, it acquires a brackish, mawkish odor. In an experience of seventeen cases I have found that if the solution be made from old seeds, or if from fresh seeds and it has stood longer than two weeks, it loses its irritative character and will have no effect whatever. I am disposed to think that an increase of jequirity does not imply an increase of effect, so that the question of preparation becomes purely one of pharmaceutics ; that is, as to how much water, whether warm or cold, and if both, how long shall the seeds remain in each ? Shall the whole seed be used after being bruised, or only the cortex, cotyledon, or gemmule ? The liability to fermentation is so great that it has been proposed to use a germicide in the solution—as salicylic

acid, hydrate of chloral, or carbolic acid—a proposition to which, I think, a good chemist would object.

The rationale of treatment is that which obtains in inoculation, viz. : the establishment of an active purulent ophthalmia in place of a chronic, granular ophthalmia, with a view to carrying off the products of the granular conjunctivitis or keratitis: to such the name *jequiritic ophthalmia* could very properly be given. The first recent clinical use of jequirity was made by de Wecker, of Paris, whose report was published in the *Annales d'Oculistique*, for July and August, 1882. A translation of this report appeared in *The Planet*, a new medical gazette of New York, in January, 1883. Moura Brazil published an article on the treatment of acute and chronic granular conjunctivitis with jequirity in the *Annales d'Oculistique* in November, 1882, in which he detailed experiments on rabbits and patients; he found that granulations of the conjunctiva became diminished and sometimes were obliterated. Moyné followed with a paper on artificial purulent ophthalmia produced by *abrus precatorius*, in the *Boll. d'Ocul.*, vol. v., No. 3, November, 1882. He was the first experimenter in Italy. The patients were three children, in one of whom the trachoma was entirely removed in twenty days; in the other two the process was milder, but met with a like success. The cornea was not pannous in any of the cases. Simi had an article in the same journal in December, 1882. Jequirity infusion was used on two patients; inflammation and discharge followed, and on the twelfth day the process was complete. On one eye in total, on another in partial staphyloma, there was no change whatever. In the second patient the granulations were decreased, and the patient affirmed improvement in sight. Terrier detailed his use of jequirity before the Soc. de Chirurgie, séance du 13^e Décembre, 1882, in a case of trachoma; purulent conjunctivitis followed, but the granulations did not disappear.

The first published use of jequirity in this country, so

far as I can learn, was by Dr. Gruening, whose sketch of two cases may be found in THE MEDICAL RECORD, March 17, 1883. These cases were admitted to the ophthalmic services of the Mount Sinai and German Hospitals of New York, and were perfect successes.

Dr. P. Callan has used the infusion at the New York Eye and Ear Infirmary on three cases without any effect. His cases, so far as I know, have not been published. An exceedingly interesting article from the pen of Mr. Charles Rice, associate editor of *New Remedies*, New York City, appeared in the June (1883) number of that journal, giving the curious history of the seeds, as well as the botanical and pharmaceutical properties of the plant. My own experience of seventeen cases comes next; and, aside from the two cases of Dr. Gruening's and three of Dr. Callan's, I know of no other use of the infusion in ophthalmic practice in this country.

It will be observed that Mr. Rice describes a different preparation of the infusion from that given above, which is the method followed out by Wecker and Gruening. The symptoms formulated by Mr. Rice are more severe than any of my cases developed. All of my patients were treated in the following way: Once a day the solution was applied to both inner lid-surfaces with a camel's-hair brush; the application is painless; two drops were ordered to be instilled into the eye every three hours; and all the patients who would devote the time and thought to the applications, applied compresses throughout the day and a part of the night. In a majority of the cases alteration was noticed within thirty-six hours, and consisted in an acute conjunctivitis followed by discharge, and the deposit of a croupous membrane upon their inner surfaces. The lids were swollen, and the eyes sustained the characteristic symptoms of an acute blennorrhœic conjunctivitis. Within from four to six days the inflammation began to abate, the infiltration of the lids to subside, and the membrane to disappear in shreds. The process of repair was hastened by one daily applica-

tion of a five-grain solution of nitrate of silver, while a saturated solution of boracic acid was used at frequent intervals to keep the surface as clean as possible. The success in some of the cases was marvellous. The cases first undertaken were dispensary patients, three in number, every one of whom was cured of long-standing pannus. Two private patients, one very young, the other in middle life, were likewise cured—all five within a fortnight; the other twelve succeeded in a less degree, while the conditions of treatment were better fulfilled than obtained with the first five, these twelve being confined to a hospital with a complement of staff physicians and trained nurses.

The following conclusions are formulated from an experience of seventeen cases :

First.—The infusion must be from *fresh* seeds, transparent, odorless, kept from air and light ; and must not be used after the development of an odor, or later than a fortnight after its preparation.

Second.—The ophthalmia induced by jequirity is strictly croupous ; is limitable in severity by the assiduity and regularity of the applications, and is not determined by the strength of the infusion.

Third.—The cornea runs no risk of perforating ulcer, and can suffer no more than a transient desquamation of epithelium.

Fourth.—Corneal and in some instances conjunctival granulations from one year to twenty years of existence are successfully removed, with but little pain and little discomfort, in from ten to twenty-one days.

Fifth.—A dense white opacity of the cornea, even of recent standing, remains unaffected by the infusion of jequirity.

It will be observed that in some respects these conclusions differ from those of Wecker, but essentially they are the same.

The following cases are here represented in tabular form :

CASE I.

Patient.

Male, aged twenty-eight; occupation, carpenter; treated at Northwestern Dispensary. Improvement in vision twentyfold.

Diagnosis.

Pannus and conjunctivitis granulosa for ten years. Vision in either eye, finger-counting at four feet.

Treatment.

Infusion of jequirity begun March 4th. Applications painless, but irritating. On third day profuse blennorrhœa, both corneæ covered with a deposit of sarcous tissue. On fifth day corneæ began to clear; discharge less. On tenth day discharge ceased. On fourteenth day patient was dismissed with $V = \frac{20}{50}$ in each eye.

CASE II.

Woman, aged twenty-five; chambermaid; treated at Northwestern Dispensary. Improvement in right eye thirty-fold; left eye fifteenfold.

General, dense pannus for twelve years. Inversion of four lids, due to fibrous scars on their inner surfaces. Stubby and vicious growth of lashes; bands of symblepharon of both eyeballs. Upper lids had been operated on with benefit for entropion. $V =$ finger-counting at two and four feet.

Infusion of jequirity begun March 3d. Applications painless, but during treatment eyes became painful. On second day free discharge, increase of pannus; later patient was led to the dispensary. On tenth day cornea clear. $V = \frac{20}{70}$ with either eye.

CASE III.

Girl, aged eleven; treated at Northwestern Dispensary. Vision in each eye quadrupled.

Partial thin pannus; cornea steamy, not fleshy; trachoma like frog's spawn on all four conjunctival surfaces.

Infusion of jequirity begun March 28th. Little blennorrhœa and little pain; infusion continued twenty days. Cystic bodies of trachoma (?) removed from all the conjunctival surfaces by the infusion.

CASE IV.

Lad, aged eighteen; occupation, apprentice to a decorative painter; private patient. Vision in each eye doubled.

Superior pannus of both eyes for more than ten years; trachoma of all the lids. Right eye, $V = \frac{20}{70}$; left eye, $V = \frac{20}{100}$.

Infusion of jequirity begun April 1st. Mucous discharge at the end of second day. Lachrymation, spasm, and photophobia considerable. On tenth day right eye had $V = \frac{20}{40}$; left eye had $V = \frac{20}{50}$.

CASE V.

Female, aged forty-seven; had always lived at home; since widowhood a housekeeper; private patient. Improvement in $V =$ eightfold.

Interior pannus of right eye for a number of years, extending up to the horizontal diameter of the cornea. $V =$ finger-counting at eight feet.

Infusion of jequirity begun May 23d. On the third day the cornea was covered with new vessels; blennorrhœa profuse; strips of muco-purulent discharge; no pain; no smarting; lids infiltrated and shiny. On nineteenth day $V = \frac{20}{70}$.

CASE VI.

Patient.

Male, aged twenty-three; shoveler of sand; treated at Charity Hospital. Improvement in V = right eye, doubled; left eye, none.

Diagnosis.

Diffuse, dense pannus for five months; trachoma for seventeen years. Right eye, $V = \frac{1}{80}$; left eye, $V = \frac{1}{80}$.

Treatment.

Infusion of jequirity begun May 20th. Reaction slight; some discharge on second day; continued for eight days. On twentieth day, for right eye, $V = \frac{1}{80}$; for left eye, $V = \frac{1}{80}$.

CASE VII.

Male, aged forty; laborer; treated at Charity Hospital. Improvement in V, doubled.

Dense, fibrous pannus for thirty years. Right eye, $V = \frac{1}{80}$.

Infusion of jequirity begun May 20th; reaction slight. On twentieth day $V = \frac{1}{40}$.

CASE VIII.

Lad of seventeen years; worker in a plaster-mill; treated at Charity Hospital. Improvement in V, right eye, none; left eye, threefold.

Maculae of both corneae, with recurrent moderate pannus for five years. Right eye, $V = \frac{20}{80}$; left eye, $V = \frac{10}{80}$.

Infusion of jequirity begun May 20th. On second day slight discharge; on third to eighth day increase of discharge. On twentieth day, for right eye, $V = \frac{20}{80}$; for left eye, $V = \frac{10}{30}$.

CASE IX.

Male, aged twenty-eight; occupation, machine-tender; treated at Charity Hospital. Improvement in V = double in each eye.

Slight, diffuse pannus; and superficial keratitis for nineteen months. Right eye, $V = \frac{20}{80}$; left eye, $V = \frac{20}{120}$.

Infusion of jequirity begun May 20th; reaction slight. On twentieth day, for right eye, $V = \frac{20}{30}$; for left eye, $V = \frac{20}{60}$.

CASE X.

Lad of twelve years; was at school at the Catholic Protectory for eighteen months; treated at Charity Hospital. Improvement in V; right eye none; left eye quadrupled.

Dense pannus crassus of both eyes; profuse discharge; blepharospasm, and photophobia; duration, eighteen months. Right eye, V = inability to count fingers at six inches; left eye, $V = \frac{1}{60}$.

Infusion of jequirity begun May 20th; reaction slight; some conjunctival chemosis and infiltration of lower lids. On twentieth day, for right eye, V = the same; for left eye, $V = \frac{4}{60}$.

CASE XI.

Male, aged fifty; laborer; treated at Charity Hospital. Improvement in V = double for each eye.

A recurrent thin sarcous pannus for eight years in both eyes. Right eye, $V = \frac{20}{120}$; left eye $V = \frac{20}{80}$.

Infusion of jequirity begun May 20th. On twentieth day, for right eye, $V = \frac{20}{60}$; for left eye, $V = \frac{20}{40}$.

CASE XII.

Male, aged twenty-two; stoker; treated at Charity Hospital. Improvement in V = double for right eye; none for left eye.

A dense, inveterate pannus of each whole cornea for eight years. Right eye, $V = \frac{5}{200}$; left eye, $V = \frac{20}{200}$.

Infusion of jequirity begun May 20th. On twentieth day, for right eye, $V = \frac{10}{200}$; for left eye, $V = \frac{20}{200}$.

CASE XIII.

Patient.

Male, aged thirty-six; longshoreman; treated at Charity Hospital. Improvement in V, for right eye = double; left eye = treble.

Diagnosis.

A variable pannus crassus for eighteen years; very dense on entering the hospital. Right eye, $V = \frac{1}{60}$; left eye, $V = \frac{1}{60}$.

Treatment.

Infusion of jequirity begun May 20th. On twentieth day, for right eye, $V = \frac{3}{80}$; for left eye, $V = \frac{3}{60}$.

CASE XIV.

Female, aged thirty-five; domestic; treated at Charity Hospital. Improvement moderate.

Right eye: A variable pannus crassus in superior portion of cornea; dense leukoma of the inferior portion of cornea, $V =$ perception of moving objects. Left eye: Leukoma corneæ, phthisis bulbi; total blindness.

Infusion of jequirity begun May 20th; Reaction slight. On twentieth day, for right eye, $V =$ finger-counting at two feet; leukoma untouched; left eye unaffected by the infusion.

CASE XV.

Female of thirty years; scullery-maid; treated at Charity Hospital. Improvement of V = tenfold in each eye.

Pannus of both corneæ; granular conjunctivitis of four lids for several years. Right eye, $V = \frac{8}{200}$; left eye, $V = \frac{10}{200}$.

Infusion of jequirity begun May 24th. Reaction severe, beginning on third day. Blennorrhœa, swollen lids, but no pain. On fourteenth, for right eye, $V = \frac{20}{60}$; for left eye, $V = \frac{20}{40}$.

CASE XVI.

Female, aged twenty-two; prostitute; treated at Charity Hospital. Improvement of V = fourfold.

Pannus of upper cornea of left eye for five years. Syphilitic cachexia; patient anæmic and scarred; looked old. $V = \frac{20}{200}$.

Infusion of jequirity begun May 20th. Reaction slight. Patient not obliged, except for treatment, to go to bed. On twentieth day, $V = \frac{20}{60}$.

CASE XVII.

Male, aged twenty-five; laborer; treated at Charity Hospital. Improvement in V, right eye = eightfold; left eye = fourfold.

Dense pannus of both upper corneæ for many years; patient syphilitic, though had never had iritis. Right eye, $V = \frac{10}{200}$; left eye, $V = \frac{6}{200}$.

Infusion of jequirity begun May 20th. Reaction not severe; began on fourth day, and continued two weeks. On twentieth day, for right eye, $V = \frac{20}{50}$; for left eye, $V = \frac{20}{200}$.

I am under obligations to Dr. Amory Chapin for assistance in the care of the cases treated at the North-western Dispensary; also to Drs. Battle and Leipzinger, House-Surgeons at Charity Hospital.

